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09/558,003	04/24/2000	Toshikazu Hori	SS-722-07	7687

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EXAMINER	
JERABEK, KELLY L	
ART UNIT	**PAPER NUMBER**
2612	

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Please find below and/or attached an Office communication concerning this application or proceeding.

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Advisory Action	Application No.	Applicant(s)	
	09/558,003	HORI ET AL.	
	Examiner	**Art Unit**	
	Kelly L. Jerabek	2612	

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 24 August 2004 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

PERIOD FOR REPLY [check either a) or b)]

a) ☒ The period for reply expires *3* months from the mailing date of the final rejection.

b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection. ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on _____. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.

2. ☐ The proposed amendment(s) will not be entered because:

   (a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);

   (b) ☐ they raise the issue of new matter (see Note below);

   (c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or

   (d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

   NOTE: _____.

3. ☐ Applicant's reply has overcome the following rejection(s): _____.

4. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).

5. ☒ The a)☐ affidavit, b)☐ exhibit, or c)☒ request for reconsideration has been considered but does NOT place the application in condition for allowance because: *See Continuation Sheet*.

6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.

7. ☒ For purposes of Appeal, the proposed amendment(s) a)☐ will not be entered or b)☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

   The status of the claim(s) is (or will be) as follows:

   Claim(s) allowed: _____.

   Claim(s) objected to: _____.

   Claim(s) rejected: *2-3, 5, and 12-16*.

   Claim(s) withdrawn from consideration: _____.

8. ☐ The drawing correction filed on _____ is a)☐ approved or b)☐ disapproved by the Examiner.

9. ☐ Note the attached Information Disclosure Statement(s)(PTO-1449) Paper No(s). _____.

10. ☐ Other: _____

Continuation of 5. does NOT place the application in condition for allowance because: 1) Applicant's arguments (page 7) state that on page 3 of the Office Action, Official Notice is taken that ADC's have dynamic ranges but claim 13 recites that the ADC range is matched with the imaging device's range. The applicant's arguments state that Tran never precisely explains an ADC to the level of detail of claim 13. Official Notice was taken to state that it is well known in the art for ADC's to match their range with imaging devices, therefore tThe Examiner is treating this argument as a challenge to the Official Notice taken in the first action. The Examiner has therefore, found a reference, Stoner US 6,318,637 that describes a photosensor array including an A/D converter wherein the full dynamic range of the A/D converter is utilized. Stoner discloses in figure 8 a portable data collection device including a photosensor array (48) for generating image data. The photosensor array (48) includes an A/D converter (210) for converting analog pixel data (thus providing a full analog dynamic range) obtained from the obtained from the addressed pixels to digital pixels (col. 9, lines 7-14). The A/D converter (210) has adjustable gain which may be adjusted via a gain adjust control signal provided on line (211) from the microprocessor (200). The microprocessor (200) evaluates the range of the acquired pixel data on-the-fly to see if the full dynamice range of the A/D converter (210) is utilized, and if not the microprocessor (200) adjusts the gain of the input to the A/D converter in order to ensure the full dynamic range is utilized (col. 9, lines 14-39). Thus, the adjustment of the gain of the input to the A/D converter ensures that the full analog dynamic range of the imaging device makes use of the full digital output word range of the A/D converter. Therefore, it would have been obvious for one skilled in the art to have been motivated to include the A/D converter with adjustable gain to ensure that the full dynamic range is utilized in the imaging system of Tran. Doing so would provide a means for achieving a satisfactory gain setting for an A/D conveter so that the full dynamic range of the converter is utilized (Stoner: Col. 9, lines 29-32).

2) Applicant's arguments (page 8) state that the analog circuits described by Tran are fixed and not selectable. The Examiner agrees with this, however the Examiner is not using the analog circuits described by Tran for any part of the rejection. Tran states that the transfer function of the image processin subsystem (14) can be implemented digitally rather than using analog circuitry (col. 7, lines 1-15). Tran further states that the gain profile utilized to modify digital signals is selected to achieve a transfer function such as the one in figure 6. It is this teaching (digital part) of Tran that the Examiner is relying on to make the rejection of claim 13. Applicant's arguments also state that nothing is mentioned by the Tran reference about selection or using tables. The Examiner respectfully disagrees. Tran states that a lookup table approach is used where each digital sample value input into the image processing subsystem (14) is replaced by a value stored in a lookup table memory location corresponding to the digital value (col. 7, lines 11-15). This illustrates both selection and tables since the values stored in a lookup table memory are selected to replace digital sample value inputs based on the digital value of the input signal.

3) Applicant's arguments (page 8) state that the Office Action reads far too much into the A,B,C regions of figure 6. The argument states that Tran does not describe three distinct curves that replace one another. The Examiner agrees that Tran doesn't describe three distinct curves, however the applicant never claims three distinct curves that replace one another. The argument further states that the present invention can select different transfer curves dynamically in each of the A,B,C regions for example. The Examiner sees the difference between the specification of the present invention and the Tran reference, however, the Tran reference reads on the claims as written because the claim language doesn't require that different transfer curves can be selected in each of the A,B,C regions, it only requires the dynamic selection of particular ones of a plurality of digital transfer functions which the Examiner is reading as being the different regions (A,B,C) of the transfer function of figure 6 since the different regions (A,B,C) have drastically different gain profiles corresponding to the regions (A,B,C). The Examiner is reading the Tran reference on claims 13 and 15 in the following way:

Tran discloses in figure 1 and imaging system (10) that is part of a video camera system (col. 3, lines 34-36). The imaging system (10) includes a sensor subsystem (12) that can include a CCD to provide a video output (col. 3, line 59 – col. 4, line 12). It is inherent that CCDs have a light-exposure-to-analog conversion dynamic range characteristic. An electrical image signal (22) received from the sensor subsystem (12) is sent to an A/D converter in order to convert the analog electrical image signal (22) outputted from the sensor subsystem (12) to a digital representation (col. 5, lines 1-9). Tran also states that digital values are modified within the subsystem (14) based on a gain profile that is stored in the subsystem (14) (col. 7, lines 7-10). The gain profile is selected to achieve a transfer function (fig. 6). It can be seen in figure 6 that the transfer function has different qualities according to the different regions (A,B,C) corresponding to a different input image intensity range (col. 6, lines 7-29). The Examiner is reading the three different regions of the transfer function as three different transfer functions since they are applying different gain curves to the signal in each region . A low dynamic range input signal will be confined to region A of the transfer function, a medium dynamic range input signal will be processed by both region A and region B, and a high dynamic range input signal will be processed by regions A, B, and C (col. 6, lines 38-49). Therefore, depending on the dynamic range of the input signal corresponding to respective portions of the image frame, a dynamic selection of particular ones of the plurality of digital transfer functions (regions A, B, and C) is provided. When the transfer function is implemented digitally, a lookup table approach is used where each digital value input into the subsystem (14) is replaced by a value stored in a lookup table memory location corresponding to the digital value (col. 7, lines 1-15). Therefore, a lookup table is connected to convert digital video output words of the A/D converter and each word is converted according to one of the digital transfer functions of figure 6 corresponding to the different regions (A,B,C). Since the lookup table replaces each digital sample value input with a value stored in the memory of the lookup table at a location that corresponds to the digital value it can be seen that a dynamic selection of the plurality of values representing the gain profiles corresponding to the different regions (A,B,C) (a.k.a. different transfer functions) of the transfer function are differently applied to portions of the image frame that include a subject of interest (the image being sensed).

4) Applicant's arguments (page 9) state that the Tran reference fails to teach the critical aspects of claims 13 and 15 and discloses only analog circuits which cannot do the job. The Examiner respectfully disagrees. Tran states that the transfer function of the image processin subsystem (14) can be implemented digitally rather than using analog circuitry (col. 7, lines 1-15). Tran further states that the gain profile utilized to modify digital signals is selected to achieve a transfer function such as the one in figure 6. It is this teaching (digital part) of Tran that the Examiner is relying on to make the rejection of claims 13 and 15. Applicant's arguments further states that the Tran reference has no A/D converter nad it is missing a digital lookup table. The Examiner respectfully disagrees. Tran states that an A/D converter can be used at the input of unit (14) to convert the analog input signal to a digital representation (col. 5, lines 1-9). Additionally, Tran states that when the transfer function is implemented digitally a lookup table approach can be used (col. 7, lines 1-16).

5) Applicant's arguments (page 10) state that there is no mention in the cited prior art about a subject of interest being in a portion of a frame, and that portion is subject to dynamic selection of particular ones of said plurality of digital transfer functions in the LUT. The Examiner respectfully disagrees. When the transfer function is implemented digitally, a lookup table approach is used where each digital value input into the subsystem (14) is replaced by a value stored in a lookup table memory location corresponding to the digital value (col. 7, lines 1-15). The digital values input into the subsystem originate at the sensor subsystem (12) and represent a captured input image (subject of interest in a portion of a frame) (col. 3, lines 59-67). Therefore, a lookup table is connected to convert digital video output words of the A/D converter and each word is converted according to one of the digital transfer functions of figure 6 corresponding to the different regions (A,B,C). Since the lookup table replaces each digital sample value input with a value stored in the memory of the lookup table at a location that corresponds to the digital value it can be seen that a dynamic selection of the plurality of values representing the gain profiles corresponding to the different regions (A,B,C) (a.k.a. different transfer functions) of the transfer function are differently applied to portions of the image frame that include a subject of interest (captured input image).

6) Applicant's arguments (pages 10-11) state that the Chaplin reference used in the rejection of claims 5 and 16 has nothing to do with the technology recited in the claimed present invention and the motivation stated to make the combination is superficial and non-specific to the issues addressed by the claimed invention. The Examiner respectfully disagrees. The Tran reference includes all of the limitations of claims 13 and 15. Specifically, Tran discloses a lookup table for converting digital values of a video camera using a transfer function (col. 7, lines 9-15). However, Tran does not specifically state that the lookup table for replacing digital video values based on a gain profile is programmable and downloadable.
Chaplin discloses a self keyer that utilizes a programmable transfer function stored in a lookup table in order to shape a background video (abstract). A multiplicative keyer (10) includes a summation circuit (12) that operates on a video signal (FILL) (col. 2, lines 64-68). The multiplicative keyer (10) also includes a transform circuit (22) consisting of a PROM/RAM (24) capable of storing more than one transfer function (fKEY) (col. 3, lines 34-44). As a result a CPU may download different transfer functions (fKEY) to the PROM/RAM (24) (col. 3, lines 38-45; figs. 3-6). The selected transfer function (fKEY) is then applied to the first multiplier (16) to shape or reshape the video signal (FILL) (col. 3, lines 41-43). Therefore, it would have been obvious for one skilled in the art to have been motivated to include the PROM/RAM (24) capable of storing more than one transfer function and capable of downloading transfer functions through the use of a CPU in the imaging system disclosed by Tran. Doing so would provide a means for storing more than one transfer function in a lookup table so that a CPU may download different transfer functions to the lookup table (col. 3, lines 38-45). The Examiner would like to note that the sole purpose of the Chaplin reference was to show a transfer function stored in a lookup table that is programmable and downloadable. Both the Chaplin reference and the Tran reference include lookup tables including transfer functions that operate on video signals in order to apply a gain to the video signal. Therefore, it would have been obvious for one skilled in the art to have been motivated to include the PROM/RAM (24) capable of storing more than one transfer function and capable of downloading transfer functions through the use of a CPU in the imaging system disclosed by Tran. Doing so would provide a means for storing more than one transfer function in a lookup table so that a CPU may download different transfer functions to the lookup table (col. 3, lines 38-45).

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